IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Norbert Städele

Application No. 10/805,337

Filed: December 4, 2007

CORRUGATING MACHINE AND METHOD
FOR THE MANUFACTURE OF SHEETS OF CORRUGATED BOARD

Examiner: Barbara J. Musser

Art Unit: 1791

REPLY BRIEF

Ronni S. Jillions
Reg. No. 31,979
Attorney for Appellant
Norbert Städele

BROWDY AND NEIMARK, P.L.L.C.
624 Ninth Street, N.W.
Washington, D.C. 20001
Phone: 202-628-5197
Fax: 202-737-3528
Email: mail@browdyneimark.com

Attorney Docket: STÄDELE2

Date: August 24, 2009

ARGUMENT

Appellant submits the following arguments in response to the Examiner's answer.

In the paragraph bridging pages 5 and 6, the Examiner asserts that the standard to be used is whether "combining the primary reference with the secondary reference is obvious." Appellant's response is that that is not the correct standard. The correct standard is whether combining the teachings of the primary reference with the teachings of the secondary reference would have been obvious to one of ordinary skill in the art at the time the invention was made. Anyone can take a claim, and looking at two or more publications disclosing elements of that claim, find those elements and thereby piece together the claimed invention. The Examiner's job is to consider the teachings of the references without impermissible hindsight reference to Appellant's disclosure and claims. The Examiner has not done so here.

On page 6, last paragraph, the Examiner alleges that "Appellant has shown no evidence that one in the art would not [have] known how to use a digital printer in a continuous process." Appellant's response is that Appellant submitted a declaration by Norbert Städele (submitted with Appellant's Brief), in which in paragraph 5, Mr. Städele addresses that very point:

> Within the prior art cited by the Examiner only Welschlau discloses a machine for manufacturing corrugated paper. However, Welschlau does not address the problem of shrinkage and, accordingly, does not disclose anything about determining scaling factors for the printing patterns. In fact, as the machine disclosed by Welschlau uses a rotary printing machine (see column 1, line 15), the scaling of the printing pattern would not be possible, since a

> rotary printing machine has to be provided with pre-fabricated printing forms. Consequently, continuously scaling the printing pattern in an in-line process is not possible with a rotary printing machine. Even more, since the rotary printing machine disclosed by Welschlau consists of several printing stations adjacent to each other and several printing stations in sequence, which must print one over the other (column 4, lines 14 *et seq.*) the problem to be solved by Welschlau is to adjust the printing stations such that the printed pictures can be printed upon the advancing paper web in proper relationship to one another and over one another (col. 4, lines 33 to 37). This is accomplished by shifting of the carrier bands relative to one another (col. 4, line 66 - col. 5, line 30). Clearly, this can only work in the absence of any shrinkage. If there was any shrinkage the carrier bands with suitably scaled printing forms would also have to be continuously adjusted relative to each other along the direction of the width of the paper web to make printing the same picture several times in proper relationship to one another and over one another possible at all. Welschlau does not address this issue as he does not address the problem of shrinkage.
>
> Thus, Welschlau does not teach me anything about avoiding an unwanted change of the shapes of the printed patterns due to shrinkage of the sheets.
>
> Only with a digital printing method in accordance with my invention it is possible to flexibly scale a printing pattern with scaling factors, which are determined depending on a continuously monitored, varying degree of shrinkage of the corrugated web being produced. With conventional, previously known printing methods, such as rotary printing, printing forms have to be pre-fabricated rendering a continuous flexible scaling impossible. In agreement with conventional paper making machinery Welschlau discloses the use of a rotary printing machine. Welschlau does not teach me any reason why I should replace such a rotary printing machine by a digital printer.

The Examiner improperly ignores this evidence.

On page 7, lines 1-3 of the Examiner's Answer, the Examiner stated "examiner is not using the printing of Welschlau. Welschlau is used to show the concept of printing in a continuous corrugating process is known.

Appellant's response is that printing in a continuous corrugating process is known using rotary printers. As evidenced by the Declaration of Mr. Städele, printing using a digital printing process in a continuous corrugating board manufacturing process is not.

On page 8, first full paragraph, the Examiner argues KSR "also states a valid rationale is using a known technique (inline printing and corrugating) to improve a similar device (digital printer of Alden) in the same way."

Appellant's response is that Alden is not a "similar device." Alden relates to a device for printing graphic design patterns on workpieces that are made of corrugated board. As noted previously, the problems attendant in printing on a prefabricated corrugated board are different than those encountered with printing on a corrugated web. Further, using the inline printing process of Welschlau would not improve Alden; it would change it completely into something it is not, from a device for printing and cutting a pre-fabricated corrugated board into a device for manufacturing corrugated web board.

With respect to the remainder of the Examiner's responses to Appellant's arguments set for on pages 5-8 of the Answer, Appellant relies on the arguments presented in its main brief.

On page 9, first paragraph, the Examiner asserts that Löffler "states that when MAKING the printing form, the changes in length and width are compensated for. (Col. 2, ll. 3-6) This therefore occurs when the device if first created and is separate from the minimization of shrinkage processes otherwise performed. It is well within the

skill of a knowledgeable artisan to determine how to compensate for the change in print size. This suggests the concept of compensating for changes in the final printed size by changing the size of the printed image is known in the printing arts."

Appellant's response is that the patent to Löffler mentions changing the size of the image when making the printing form, in response to the size of the printing material sheet (see col. 2, lines 1-10, col. 2, line 60 through col. 3, line 3, col. 4, lines 21-24 and claims 4 and 5 of Löffler). However, Löffler is concerned with the *average* contraction values to be expected during a printing press run (col. 4, lines 21-24). He then takes into account the expected average changes in the outer dimensions of the material to be printed on, based on such average contraction values when making the *printing form*. This printing form is then used to print the images on the sheets. One of ordinary skill in the art would have understood that this average contraction data must be determined from a number of images from previous press runs. Thus, the images on adjacent sheets in a present press run may be different due to actual contraction values since a predetermined "average" was inputted to the system and used to make the printing form.

In the present invention, the change in the size of the webs of material is continuously monitored ("determining the distances between the adjacent marks (17, 18) on at least one of the webs of material…") in order to change the size of the printing patterns that will appear on the web ("determining a degree of shrinkage … based on the ratio of the distance of the marks… determining scaling factors for the printing pattern … so that the desired size of the printing patterns will appear on the web…

digitally printing the printing pattern on at least one web of material ... in accordance with the determined scaling factors.").

This is functionally and structurally different from the device of Löffler because the present invention involves printing varying sizes of images on a continuous web of material and then cutting the web of material into sheets dependent on the shape and size of the printed image ("cutting the sheets of corrugated board from the digitally printed web of corrugated board in accordance with the shape and size of the digitally imprinted pattern."). In contrast, Löffler is concerned with printing images on pre-cut, individual sheets. One of ordinary skill in the art would have understood that problems associated with individual sheets may not apply to a continuous web (tension characteristics in a continuous web, for example).

Additionally, as noted above, Löffler mentions taking into account the measured contraction data when making the printing form (column 4, lines 18 to 24). Löffler discloses an offset printing machine. An offset printing machine uses predetermined printing tools such as printing rolls or printing forms. Although, Löffler teaches taking into account measured contraction data, these data are used for making a printing form. That means that Löffler integrates contraction data of the corrugated boards in order to enhance an offset printing process by changing the printing forms themselves in response to the contraction data. However, one of ordinary skill in the art would not have been motivated to generate a new specially-designed form for use in an in-line corrugated web manufacturing process using a digital printing process after noticing new dimensions of shrinkage of the manufactured corrugated board because

this approach has serious disadvantages. For example, it would significantly increase the cost of making the board, and would also slow down the process.

That Löffler uses an offset printing process also means that Löffler does **not** teach a digital printing process according to the present claimed invention. Specifically, as noted by Städele in his Declaration attached to Appellant's Brief, "with conventional, previously known printing methods, such as rotary printing, printing forms have to be pre-fabricated rendering a continuous, flexible scaling impossible." Städele, ¶ 5. Because printing forms are made in advance, they are not suitable for the continuous, inline web printing process involved in the present invention. Accordingly, one of ordinary skill in the art would not have found it obvious, at the time the invention was made, to use a patent relating to the making of such a printing form to make the present invention, absent resort to impermissible hindsight reference to Appellant's disclosure. In fact, as in previous actions, the Examiner's Answer completely ignores the declaration evidence of record.

Appellant's invention is based on a digital printing process (claim 9 recites "digitally printing the printing pattern..."). This process is characterized by a digital control of digital printing units 4, 26 by a control unit 7. The digital printing units 4, 26 each comprise a printing head 5, 28, which is built as an ink jet head in an exemplary embodiment of the invention. Other kinds of printing heads are also possible. After measuring the current shrinkage, *i.e.*, during the manufacturing process of the corrugated boards, a corresponding shrinkage-signal is transferred via the control unit 7 to the printing units 4, 26 in order to adjust the printed image. This adjustment is

realized immediately and is further very flexible in handling since the dimensions of the printed image can be adjusted easily by controlling the printing head respectively with every printing job.

In contrast, if a person ordinarily skilled in the art intends to adjust a printed image using an offset printing machine according to Löffler, he has to create a new printing form for every printing cycle. This is very long-winded and cost-intensive. Further, doing so, the offset printing machine according to Löffler has to be stopped before a new printing form is generated. This system is not flexible.

A method for manufacturing corrugated boards with an offset printing machine – whether a compensation for changes of a final printing is integrated or not – is completely different from a manufacturing method based on a digital printing process according to Appellant's application. Appellant does not contest that it is well-known in the printing industry to compensate for the change in print size. Perhaps from this knowledge, one of ordinary skill would recognize the concept of compensation for changes in the final printed size by changing the size of the printed image. But realizing a changing of the size of the printed image by using offset printing forms is a static and discontinuous process; whereas by using a digital printing unit, one can not only compensate for shrinkage problems during a manufacturing process of corrugated boards, but can also immediately react to changes in the shrinkage within a continuous printing process. One of ordinary skill in the art would not have known how to implement such a process as is claimed in claim 9, absent impermissible hindsight reconstruction of Appellant's invention.

CONCLUSION

For the reasons given above, it is respectfully submitted that the claims at bar are allowable over the cited art. Appellant again respectfully submits that the Examiner has not met his burden. Appellant respectfully requests reversal of the Examiner's rejections.

If Appellant has overlooked any new argument by the Examiner in the Examiner's Answer which is not fully addressed in Appellant's main brief or above, such omission is not to be taken as any admission or concession by Appellant of any agreement with the Examiner's position.

Respectfully submitted,

BROWDY AND NEIMARK, P.L.L.C.
Attorneys for Appellant

By /Ronni S. Jillions/
Ronni S. Jillions
Registration No. 31,979

RSJ:JMJ:ltm
G:\BN\R\rau\Stadele2\pto\2009-08-24ReplyBrief.doc